

**IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

NUMATICS INCORPORATED,)	
)	
Plaintiff,)	
)	Case No. 13-11049
v.)	
)	Honorable David M. Lawson
BALLUFF, INC. AND)	
H.H. BARNUM COMPANY)	
)	
Defendants.)	
)	
)	

**DEFENDANT’S DISCLOSURE OF NON INFRINGEMENT
CONTENTIONS AND INVALIDITY CONTENTIONS**

Pursuant to the Court’s Case Management and Scheduling Order entered in this action (Doc. 19) (“the Order”), Defendants Balluff, Inc. and H.H. Barnum Company, (hereinafter, “Balluff”), hereby submits their Disclosure of Noninfringement Contentions and Invalidity Contentions to Plaintiff Numatics Incorporated (hereinafter, “Numatics”). Balluff’s noninfringement and invalidity contentions below are based upon their construction of the claims, and information and discovery available, and analysis completed, as of the date of these contentions. Further discovery, independent investigation, and analysis, as well as the Court’s claim construction, also may supply additional facts and add meaning

to known facts, as well as establish entirely new factual conclusions and legal contentions, all of which may lead to additions, changes, or variations to or from the contentions below. Accordingly, Balluff reserves the right to amend or supplement its contentions as discovery progresses and as permitted by the Federal Rules of Civil Procedure and any other authority or order of this Court.

Balluff contends that its Accused Products as identified by Numatics in its Infringement Contentions served November 15, 2013, do not infringe any valid claims of U.S. Patent Number 7,967,646 (hereinafter, the “’646 Patent”). Numatics identified 33 of Balluff’s products as infringing claims 2, 3, 22, 23, 24, 25, 31, 32, 33, 34, 40, and 41 (“the Asserted Claims”). Because Numatics has limited its infringement contentions to the Asserted Claims, Balluff will only address these claims, although it reserves the right to assert noninfringement of any other claim Numatics may subsequently assert in this litigation.

Balluff objects to Numatics’ contentions because they do not conform to the requirements of the Court’s Order. In particular, Numatics has made a single combined allegation against all 33 Accused Products, without addressing the products individually. Furthermore, it has not explained whether the products infringe literally or under the doctrine of equivalents, nor has it provided any factual basis for its summary statement, “Alternatively, and to the extent any of the

Asserted Claims may not be literally infringed, Plaintiff alleges that the Defendants' contributorily infringe and/or induce infringement of the Asserted Claims."

Despite these deficiencies in Numatics' contentions, attached hereto as **Appendix A** is Balluff's chart explaining the basis for its belief that none of the Accused Products infringe any valid claim among the Asserted Claims.

Balluff further contends that each of the Asserted Claims of the '646 Patent are invalid because they are each anticipated under 35 U.S.C. § 102(b) or made obvious pursuant to 35 U.S.C. § 103(a) by the enumerated prior art and combinations of prior art identified in **Appendix B** attached hereto. Although not required for a determination of obviousness in view of *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419–20 (2007), in accordance with the Court's Order, an explanation of the motivation to combine prior art references available to a person of ordinary skill in the art has been included for each combination of prior art.

Balluff concurrently produces the documents required pursuant to the Court's Order.

Dated: December 17, 2013

Respectfully submitted,

s/ Ann G. Schoen

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing was electronically delivered upon the following this 17th day of December, 2013:

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Dated: December 17, 2013

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EXHIBIT A**NONINFRINGEMENT CONTENTIONS**

Claim 2	
<p>An electrical serial fieldbus communication system comprising: a module having an electronic numeric or alpha-numeric display thereon for displaying information relative thereto, and said module being a communication module constructed to be connected to a plurality of external output devices.</p>	<p>The '646 patent defines "module" to mean "may be modular to be connected with other units or may be a stand alone unit." Col. 4, ll. 11-12.</p> <p>The communication module (element 30) is described as a separable component having a communication fitting and a power fitting for main and auxiliary power supplies. Col. 4, ll. 19-20, and Figs. 1, 2.</p> <p>Each of the Accused Products is entirely missing the claimed "communication module." It has no separable component that is a "communication module constructed to be connected to a plurality of external output devices." In each of the Accused Products, the communication portion and the input, output, or input/output portion of each device are both integral parts of a single non-separable device. At least because each of the Accused Products is entirely missing this claim limitation, none of the Accused Products fall within claim 2 literally or under the doctrine of equivalents.</p>
Claim 3	
<p>An electrical serial fieldbus communication system comprising: a module having an electronic numeric or alpha-numeric display thereon for displaying information relative thereto; and said module being an I/O modular unit</p>	<p>The '646 patent defines "modular" as able to be connected with other units.</p> <p>The I/O modules (element 18) are described and depicted as separable components. Figs. 1-5.</p> <p>Each of the Accused Products is entirely missing the claimed "I/O modular unit."</p>

<p>having externally available connectors for connecting to a plurality of input sensors and/or output devices.</p>	<p>It has no such separable component. In each of the Accused Products, the communication portion and the input/output portion of each device are both integral parts of a single non-separable device. At least because each of the Accused Products is entirely missing this claim limitation, none of the Accused Products fall within claim 3 literally or under the doctrine of equivalents.</p> <p>Furthermore, as is apparent from the information provided in Numatics' contentions, several of the Accused Products are not I/O devices, but rather either solely input devices or solely output devices, and so cannot meet this limitation for yet this further reason. Among such Accused Products are product numbers BNI0014, BNI0015, BNI0016, BNI004M, BNI006J, BNI0018, BNI0053, BNI005F, BNI005C, BNI0057, BNI002F, BNI0049, and BNI002E.</p>
<p>Claim 22</p>	
<p>An I/O unit in connection with a serial fieldbus system comprising: a housing having a plurality of externally available connectors for connecting to a plurality of input sensors and/or output devices; and an electronic numeric or alpha-numeric display mounted on a face of the I/O unit for displaying information relative thereto.</p>	<p>As is apparent from the information provided in Numatics' contentions, several of the Accused Products are not I/O units, but rather either solely input devices or solely output devices, and so cannot meet this limitation for at least this reason. Among such Accused Products are product numbers BNI0014, BNI0015, BNI0016, BNI004M, BNI006J, BNI0018, BNI0053, BNI005F, BNI005C, BNI0057, BNI002F, BNI0049, and BNI002E.</p> <p>For each Accused Product, the display is located on the communication portion of the unit and not the I/O portion, and so</p>

	to the extent any Accused Product can be considered a “I/O unit”, it is entirely missing the limitation that the “display [is] mounted on a face of the I/O unit.” For at least that reason, it cannot infringe claim 22, either literally or under the doctrine of equivalents.
Claim 23	
An I/O unit as defined in claim 22 further comprising: said electronic numeric or alpha-numeric display being manually manipulated for scrolling through menus and different indicia relating to different parameters of said I/O unit.	Because claim 22 from which this claim depends is not infringed, claim 23 cannot be infringed by any of the Accused Products either literally or under the doctrine of equivalents.
Claim 24	
An I/O unit as defined in claim 23 further comprising: said electronic numeric or alpha-numeric display having operable buttons for scrolling through menus and different indicia relating to different parameters of said I/O unit.	Because claims 22 and 23 from which this claim depends are not infringed, claim 24 cannot be infringed by any of the Accused Products either literally or under the doctrine of equivalents.
Claim 25	
An I/O unit as defined in claim 24 further comprising: said operable buttons being positioned laterally at each side of said electronic numeric or alpha-numeric display; and said electronic numeric or alpha-numeric display extending laterally across a front face of said I/O unit near an upper end of said I/O unit.	Because claims 22, 23, and 24 from which this claim depends are not infringed, claim 24 cannot be infringed by any of the Accused Products either literally or under the doctrine of equivalents.
Claim 31	
A main communication module in connection with an electrical serial fieldbus communication system, said main communication module comprising:	The ‘646 patent defines “module” to mean “may be modular to be connected with other units or may be a stand alone unit.” Col. 4, ll. 11-12. The main communication module


<p>said main communication module constructed to be connectable to a plurality of external output devices; and an electronic numeric or alpha-numeric display on a face of the main communication module for displaying the information relative thereto.</p>	<p>(element 30) is described as a separable component having a communication fitting and a power fitting for main and auxiliary power supplies. Col. 4, ll. 19-20, and Figs. 1, 2.</p> <p>Each of the Accused Products is entirely missing the claimed “main communication module.” It has no separable component that is a “communication module constructed to be connected to a plurality of external output devices.” In each of the Accused Products, the communication portion and the input, output, or input/output portion of each device are both integral parts of a single non-separable device. At least because each of the Accused Products is entirely missing this claim limitation, none of the Accused Products fall within claim 31 literally or under the doctrine of equivalents.</p>
<p>Claim 32</p>	
<p>A main communication module as defined in claim 31 further comprising: said electronic numeric or alpha-numeric display being manually manipulated for scrolling through menus and different indicia relating to different parameters of said main communication module.</p>	<p>Because claim 31 from which this claim depends is not infringed, claim 32 cannot be infringed either literally or under the doctrine of equivalents.</p>
<p>Claim 33</p>	
<p>A main communication module as defined in claim 32 further comprising: said electronic numeric or alpha-numeric display having operable buttons for scrolling through menus and different indicia relating to different parameters of said main communication module.</p>	<p>Because claims 31 and 32 from which this claim depends are not infringed, claim 33 cannot be infringed either literally or under the doctrine of equivalents.</p>

Claim 34	
<p>A main communication module as defined in claim 33 further comprising: said operable buttons being positioned laterally at each side of said electronic numeric or alpha-numeric display; and said electronic numeric or alpha-numeric display extending laterally across a front face of said main communication module near an upper end of said main communication module.</p>	<p>Because claims 31, 32, and 33 from which this claim depends are not infringed, claim 34 cannot be infringed either literally or under the doctrine of equivalents.</p>
Claim 40	
<p>An electrical serial fieldbus communication system as defined in claim 2 further comprising: said communication module being interposed between a bank of I/O units and a bank of valve units.</p>	<p>Because claim 2 from which this claim depends is not infringed, claim 40 cannot be infringed either literally or under the doctrine of equivalents. Furthermore, each of the Accused Products is entirely missing any “communication module being interposed between a bank of I/O units and a bank of valve units.”</p> <p>In addition, as is apparent from the information provided in Numatics’ contentions, several of the Accused Products are not I/O units, but rather either solely input devices or solely output devices, and so cannot meet this limitation for at least this reason. Among such Accused Products are product numbers BNI0014, BNI0015, BNI0016, BNI004M, BNI006J, BNI0018, BNI0053, BNI005F, BNI005C, BNI0057, BNI002F, BNI0049, and BNI002E.</p> <p>The Accused Products are thus entirely missing the claimed limitation of claim 40, and so do not infringe literally or under the doctrine of equivalents. Furthermore, Balluff cannot directly</p>

	<p>infringe either of these claims because its customers often determine the layout of the various component parts in any system with no input or knowledge of Balluff. Second, because Balluff's devices are staple articles used in many systems that contain no valve units, they have substantial non-infringing uses and so Balluff cannot contributorily infringe this claim. Likewise, Balluff often does not know the arrangement of components its customer intends to use, and so does not know whether there is even the possibility of an infringing use. As a result, it cannot be said to be knowingly inducing infringement.</p>
Claim 41	
<p>A main communication module as defined in claim 31 further comprising: said communication module being interposed between a bank of I/O units and a bank of valve units.</p>	<p>Because claim 31 from which this claim depends is not infringed, claim 40 cannot be infringed either literally or under the doctrine of equivalents. Furthermore, each of the Accused Products is entirely missing any "communication module being interposed between a bank of I/O units and a bank of valve units."</p> <p>In addition, as is apparent from the information provided in Numatics' contentions, several of the Accused Products are not I/O units, but rather either solely input devices or solely output devices, and so cannot meet this limitation for at least this reason. Among such Accused Products are product numbers BNI0014, BNI0015, BNI0016, BNI004M, BNI006J, BNI0018, BNI0053, BNI005F, BNI005C, BNI0057, BNI002F, BNI0049, and BNI002E.</p> <p>The Accused Products are thus entirely</p>

	<p>missing the claimed limitation of claim 40, and so do not infringe literally or under the doctrine of equivalents. Furthermore, Balluff cannot directly infringe either of these claims because its customers often determine the layout of the various component parts in any system with no input or knowledge of Balluff. Second, because Balluff's devices are staple articles used in many systems that contain no valve units, they have substantial non-infringing uses and so Balluff cannot contributorily infringe this claim. Likewise, Balluff often does not know the arrangement of components its customer intends to use, and so does not know whether there is even the possibility of an infringing use. As a result, it cannot be said to be knowingly inducing infringement.</p>
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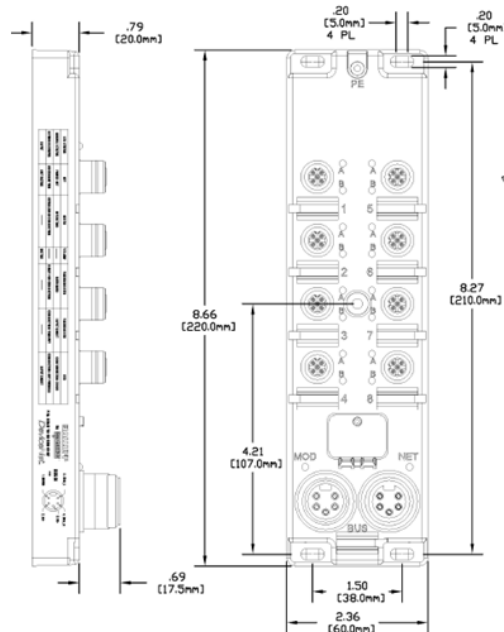
EXHIBIT B**INVALIDITY CONTENTIONS**

Claim 2	Basis for Invalidity
An electrical serial fieldbus communication system comprising: a module having an electronic numeric or alpha-numeric display thereon for displaying information relative thereto, and said module being a communication module constructed to be connected to a plurality of external output devices.	<p>The '646 patent is entitled to a priority date no earlier than July 20, 2007. More than one year before that date, an input/output module with an alpha-numeric display was sold and offered for sale in this country and publications describing its operation were available worldwide. Specifically, prior to July 2006, products that met the AS-i standards, such as those built by Bihl+Wiedemann, were sold and offered for sale by Balluff. Such a device is pictured below:</p>  <p>A photograph of another exemplary AS-i product, which Balluff understands to have been offered for sale by Turck by about September 30, 2005, is also provided:</p>



These two AS-i products (collectively, “the AS-i modules”) were communication modules for use in electrical serial fieldbus communication systems that comprised “an electronic numeric or alpha-numeric display thereon for displaying information relative thereto.” The AS-i modules were connected via external wires to input/output connectors, *i.e.*, a plurality of external devices.

To the extent claim 2 could be read to cover unitary non-modular devices such as the Accused Products, such a claim interpretation is also invalidated by the prior art. It is rendered obvious by the AS-I modules. In addition to the AS-i modules, more than a year before the priority date of the ‘646 patent, Balluff was also selling a unitary device with both a communication portion and an I/O portion with a rotary switch rather than an alpha-numeric display. A schematic diagram of that prior art product, Prod. Spec. BDN A-T8-CO-ADO-01-02, is provided below:



More than a year before the '646 patent priority date it was well-known in the art to interchangeably use both rotary switches and alpha-numeric displays on such devices. Thus, it would have been obvious to a person of skill in the art at the time the '646 patent was filed to combine the alpha-numeric display of the AS-i modules with the device pictured above ("the BDN device").

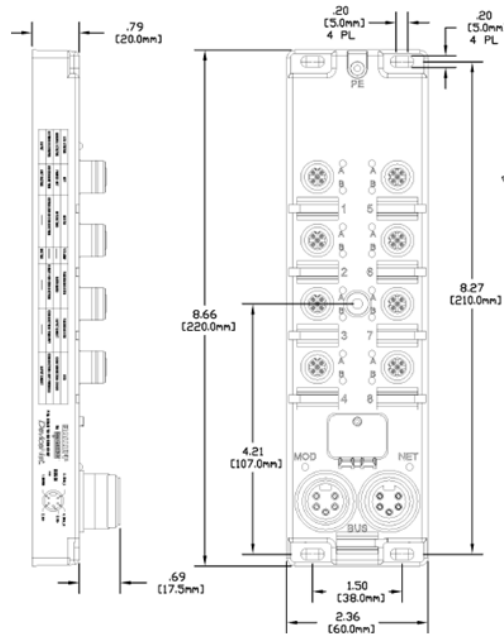
The AS-i modules and the BDN device anticipated or rendered obvious claim 2.

Claim 3

An electrical serial fieldbus communication system comprising: a module having an electronic numeric or alpha-numeric display thereon for displaying information relative thereto; and said module being an I/O modular unit having externally

More than a year before the priority date of the '646 patent, Balluff was also selling a unitary device with both a communication portion and an I/O portion with a rotary switch rather than an alpha-numeric display. A schematic diagram of that prior art product, Prod. Spec. BDN A-T8-CO-ADO-01-02, is provided below:

available connectors for connecting to a plurality of input sensors and/or output devices.




More than a year before the '646 patent priority date it was well-known in the art to interchangeably use both rotary switches and alpha-numeric displays on such modules. Thus, it would have been obvious to a person of skill in the art at the time the '646 patent was filed to combine the alpha-numeric display of the AS-i modules with the module pictured above. A person of ordinary skill in the art would have been motivated to combine the alpha-numeric displays of the AS-i modules with the I/O device of the BDN device because the two pieces of equipment are used in the same field of endeavor, industrial controls, and in fact, could be used together.


Claim 22

An I/O unit in connection with a serial fieldbus system comprising: a housing having a plurality of externally available connectors for connecting to a plurality of input sensors and/or

As explained above, the AS-i modules and the BDN device included a "housing having a plurality of externally available connectors for connecting to a plurality of input sensor and/or output devices" and disclose or suggest the numeric or alpha-numeric display, all as required by claim 22, and so render that claim invalid.

In addition, use of displays in an I/O block are taught by US 2003/0084211, which was published more than a year before the earliest filing date of the '646 patent. Specifically, US 2003/0084211 teaches "a user interface is incorporated into an I/O Block." ¶ 0028. Such a user input

<p>output devices; and an electronic numeric or alpha-numeric display mounted on a face of the I/O unit for displaying information relative thereto.</p>	<p>device includes a keypad where “four arrow keys are used to move through menus displayed on the screen.” ¶ 0032. Thus ‘211 publication also anticipates claim 22.</p>
<p>Claim 23</p>	
<p>An I/O unit as defined in claim 22 further comprising: said electronic numeric or alpha-numeric display being manually manipulated for scrolling through menus and different indicia relating to different parameters of said I/O unit.</p>	<p>As to claim 22, see above. The AS-i modules included push buttons, as shown below, and so expressly teach at least the limitations of claim 23.</p> <p>5 Connections, Displays and Operating Keys</p>  <p>On the front panel of the device in stainless steel housing are located:</p> <ul style="list-style-type: none"> • [1] RS232 service and diagnostic interface (only in connection with "AS-i-Control-Tools") • [2] LEDs • [3] DeviceNet (5-pin plug) connector as DeviceNet interface • [4] LC display • [5] push-buttons to configure the device • [6] Terminals to connect the power supply and the AS-i circuit. <p>Displays, including those with buttons, as described above are further anticipated by US 2003/0084211.</p>
<p>Claim 24</p>	
<p>An I/O unit as defined in claim 23 further comprising: said electronic numeric or alpha-numeric display having operable buttons for scrolling through menus and</p>	<p>As to claim 23, see above. The AS-i modules included push buttons, as shown below, and so expressly teach at least the limitations of claim 24.</p>

<p>different indicia relating to different parameters of said I/O unit.</p>	<p>5 Connections, Displays and Operating Keys</p>  <p>On the front panel of the device in stainless steel housing are located:</p> <ul style="list-style-type: none"> • [1] RS232 service and diagnostic interface (only in connection with "AS-i-Control-Tools") • [2] LEDs • [3] DeviceNet (5-pin plug) connector as DeviceNet interface • [4] LC display • [5] push-buttons to configure the device • [6] Terminals to connect the power supply and the AS-i circuit. <p>Displays, including those with buttons, as described above are further anticipated by US 2003/0084211.</p>
<p>Claim 25</p>	
<p>An I/O unit as defined in claim 24 further comprising: said operable buttons being positioned laterally at each side of said electronic numeric or alpha-numeric display; and said electronic numeric or alpha-numeric display extending laterally across a front face of said I/O unit near an upper end of said I/O unit.</p>	<p>As to claim 24, see above.</p> <p>Button location would have been an obvious design choice. In the AS-i module, the display “extend[s] laterally across a front face” of the module. It would have been obvious to use the same display location on the claimed I/O unit, which is used in connection as part of the same system as the AS-I communication module. As a result, claim 25 is rendered obvious by the AS-i modules and the BDN device.</p> <p>Displays, including those with buttons “positioned laterally at each side of said” display, as described above are further anticipated by US 2003/0084211.</p>
<p>Claim 31</p>	
<p>A main communication module in connection with an</p>	<p>The ‘646 patent is entitled to a priority date no earlier than July 20, 2007. More than one year before that date, an input/output module with an alpha-numeric display was sold and offered for sale in this country and publications</p>

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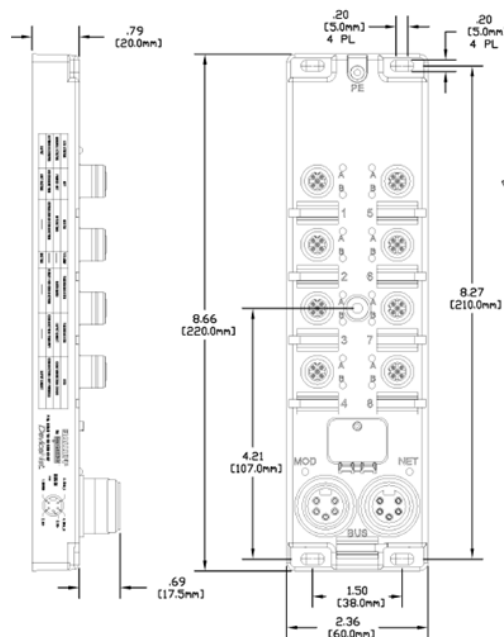


A photograph of another exemplary AS-i product, which Balluff understands to have been offered for sale by Turck by about September 30, 2005, is also provided:




These two AS-i products (collectively, “the AS-i modules”) were main communication modules for use in electrical serial fieldbus communication systems that comprised “an electronic numeric or alpha-numeric display thereon for displaying information relative thereto.” The AS-i modules were connected via external wires to input/output connectors, *i.e.*, a plurality of external devices.


To the extent claim 2 could be read to cover unitary non-modular devices such as the Accused Products, such a claim interpretation is also invalidated by the prior art. It is rendered obvious by the AS-I modules. In addition to the AS-i modules, more than a year before the priority date of the '646 patent, Balluff was also selling a unitary module with both a communication portion and an I/O portion with a rotary switch rather than an alpha-numeric display. A schematic diagram of that prior art product, Prod. Spec. BDN A-T8-CO-ADO-01-02, is provided below:



More than a year before the '646 patent priority date it was well-known in the art to use both rotary switches and alpha-numeric displays on such modules. Thus, it would have been obvious to a person of skill in the art at the time the '646 patent was filed to combine the alpha-numeric display of the AS-i modules with the module pictured above ("the BDN device").

The AS-i modules and the BDN device anticipated or rendered obvious claim 31.

Claim 32	
<p>A main communication module as defined in claim 31 further comprising: said electronic numeric or alpha-numeric display being manually manipulated for scrolling through menus and different indicia relating to different parameters of said main communication module.</p>	<p>As to claim 31, see above.</p> <p>The AS-i modules included push buttons, as shown below, and so expressly teach at least the limitations of claim 32.</p> <p>Displays, including those with buttons “positioned laterally at each side of said” display, as described above are further anticipated by US 2003/0084211.</p> <p>5 Connections, Displays and Operating Keys</p>  <p>On the front panel of the device in stainless steel housing are located:</p> <ul style="list-style-type: none"> • [1] RS232 service and diagnostic interface (only in connection with "AS-i-Control-Tools") • [2] LEDs • [3] DeviceNet (5-pin plug) connector as DeviceNet interface • [4] LC display • [5] push-buttons to configure the device • [6] Terminals to connect the power supply and the AS-i circuit. <p>In addition, use of displays in an I/O block are taught by US 2003/0084211, which was published more than a year before the earliest filing date of the ‘646 patent. Specifically, US 2003/0084211 teaches “a user interface is incorporated into an I/O Block.” ¶ 0028. Such a user input device includes a keypad where “four arrow keys are used to move through menus displayed on the screen.” ¶ 0032. Thus ‘211 publication also anticipates claim 32.</p>
Claim 33	
<p>A main communication module as defined in claim 32 further comprising: said electronic numeric or alpha-numeric display having operable</p>	<p>As to claim 32, see above.</p> <p>The AS-i modules included push buttons, as shown below, and so expressly teach at least the limitations of claim 33.</p>

<p>buttons for scrolling through menus and different indicia relating to different parameters of said main communication module.</p>	<p>5 Connections, Displays and Operating Keys</p>  <p>On the front panel of the device in stainless steel housing are located:</p> <ul style="list-style-type: none"> • [1] RS232 service and diagnostic interface (only in connection with "AS-i-Control-Tools") • [2] LEDs • [3] DeviceNet (5-pin plug) connector as DeviceNet interface • [4] LC display • [5] push-buttons to configure the device • [6] Terminals to connect the power supply and the AS-i circuit. <p>In addition, use of displays in an I/O block are taught by US 2003/0084211, which was published more than a year before the earliest filing date of the '646 patent. Specifically, US 2003/0084211 teaches "a user interface is incorporated into an I/O Block." ¶ 0028. Such a user input device includes a keypad where "four arrow keys are used to move through menus displayed on the screen." ¶ 0032. Thus '211 publication also anticipates claim 33.</p>
<p>Claim 34</p>	
<p>A main communication module as defined in claim 33 further comprising: said operable buttons being positioned laterally at each side of said electronic numeric or alpha-numeric display; and said electronic numeric or alpha-numeric display extending laterally across a front face</p>	<p>As to claim 33, see above.</p> <p>Button location would have been an obvious design choice. In the AS-i module, the display "extend[s] laterally across a front face" of the module. It would have been obvious to use the same display location on the claimed I/O unit, which is used in connection as part of the same system as the AS-I communication module. As a result, claim 34 is rendered obvious by the AS-i modules and the BDN device.</p> <p>In addition, use of displays in an I/O block are taught by US 2003/0084211, which was published more than a year before the earliest filing date of the '646 patent. Specifically, US 2003/0084211 teaches "a user interface is incorporated into an I/O Block." ¶ 0028. Such a user input device includes a keypad where "four arrow keys are used to move through menus displayed on the screen." ¶ 0032. Thus '211 publication also anticipates claim 34.</p>

of said main communication module near an upper end of said main communication module.	
Claim 40	
An electrical serial fieldbus communication system as defined in claim 2 further comprising: said communication module being interposed between a bank of I/O units and a bank of valve units.	As to claim 2, see above. The AS-i module could be connected by wires to control valve units and it could be connected by wires to an I/O device, it would have been an obvious design choice to arrange these three different “modules” such that the AS-i module was physically located between a bank of I/O units and a bank of valve units. For at least this reason, it renders claim 40 invalid.
Claim 41	
A main communication module as defined in claim 31 further comprising: said communication module being interposed between a bank of I/O units and a bank of valve units.	As to claim 31, see above. The AS-i module could be connected by wires to control valve units and it could be connected by wires to an I/O device, it would have been an obvious design choice to arrange these three different “modules” such that the AS-i module was physically located between a bank of I/O units and a bank of valve units. For at least this reason, it renders claim 41 invalid.